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Department of Energy
Finding of No Significant Impact
Actinide Source Term Waste Test Program

Los Alamos National Laboratory

U. S. Department of Energy
Los Alamos Area Office
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Los Alamos, NM 87544

DEPARTMENT OF ENERGY

FINDING OF NO SIGNIFICANT IMPACT,
ACTINIDE SOURCE TERM WASTE TEST PROGRAM
LOS ALAMOS NATIONAL LABORATORY

PROPOSED ACTION: The United States Department of Energy (DOE) proposes to conduct the Actinide Source-Term Waste Test Program at its Los Alamos National Laboratory (LANL), Los Alamos, New Mexico. The proposed test program is needed to allow the Department to study the behavior of actinide (certain radioactive) elements when exposed to brine (salt solutions) to help evaluate whether the proposed Waste Isolation Pilot Plant (WIPP) would comply with Environmental Protection Agency (EPA) regulations specified at 40 CFR 191 Subpart B for disposal systems for Transuranic (TRU) waste (certain types of radioactive waste). WIPP is a full-scale pilot plant located near Carlsbad, New Mexico, designed to demonstrate the feasibility of long-term management, storage, and disposal of TRU waste; WIPP has been constructed but has not yet been authorized to accept any waste for testing or permanent disposal. DOE needs to observe actual behavior of actinides exposed to brine, to verify theoretical calculations and computer modeling to demonstrate compliance with the Federal regulations.

The proposed tests would be conducted in the Chemistry and Metallurgy Research (CMR) Building in Technical Area 3 at LANL. The test containers would be loaded with TRU waste at the Size Reduction Facility (SRF), Building 84 at Technical Area 50 at LANL. The tests would simulate the chemistry that may occur in WIPP storage rooms in the event that rooms storing TRU waste were partially or completely filled with brine. The brine used in the tests would be chemically similar to brine naturally found in the underground formations that form the WIPP infrastructure. The experiments would also include sampling and analyzing gases

that may accumulate within the headspace of the test containers as a result of the interactions between the radioactive TRU waste and the brine. These would be non-radioactive gases generated as a result of metallic corrosion or microbial and radiolytic reactions between the contained TRU waste and the brine.

The Department has prepared an environmental assessment (DOE/EA-0977) that compares the impacts of the proposed action with those of not conducting the testing program (the "no action" alternative), and those of conducting the proposed testing program at the Department's Lawrence Livermore National Laboratory, Livermore, California. The Department considered, but dismissed as unreasonable, the alternatives of performing the testing program at a location other than the two laboratories, and conducting the testing program at alternative locations at LANL.

ENVIRONMENTAL IMPACTS: The environmental assessment indicates that the environmental impacts from conducting the proposed action would be very small, and that although the impacts from conducting the proposed tests at Livermore would be slightly greater due to off-site transportation of waste materials, the impacts from that alternative would also be very small.

The proposed action would take place within test containers inside an existing facility which would filter all air emissions. There would be only a negligible increase in radioactive emissions above routine annual emissions for the CMR building. Because activities would take place inside an existing facility, there would be no impact on biological, cultural or historic resources. Also, there would be no socioeconomic impacts anticipated. Radiation

doses to individual workers and to the public are not expected to increase from activities associated with the proposed action. However, since the number of operating personnel performing work would increase and set-up tasks and operations would vary, the total dose for all workers (person-rem) at both the CMR and SRF buildings could increase by approximately 3.5%. The risk of excess cancer mortality as a result of these doses would be about 1 in 40 million for a member of the public, 1 in 10,000 for the maximally exposed worker and 1 in 100,000 for a typical worker at the facility. Radioactive wastes from the Test Program would increase the existing solid waste streams for the CMR and SRF facilities by 2%, or approximately 11 cubic meters (400 cubic feet) per year and the liquid waste streams by 1%, or less than 2,600 liters (687 gallons) per year. The environmental impacts of the on-site disposal of these wastes would be negligible.

Although the possibility of a maximum postulated earthquake occurring at LANL and resulting in a major accident is considered extremely remote, consequences of such an accident could result in a radiation dose of 20 rem to the maximally exposed worker and 0.44 rem to the maximally exposed member of the public. A transportation accident involving a TRU waste drum spill that occurs on Pajarito Road between the CMR and SRF buildings is also considered to be very unlikely. Should such an accident occur, the dose to the maximally exposed worker and to the public could be 0.14 rem.

The proposed action is expected to have negligible impacts on the cumulative air emissions from LANL facilities during the time the tests are being conducted. Cumulative radiation exposures to personnel are expected to be minimal and will be maintained as low as reasonably achievable.

Copies of the EA were provided to the Governors of the Cochiti, Jemez, Santa Clara and San Ildefonso Pueblos, and the New Mexico Environment Department on September 21, 1994 for their preapproval review. On September 22, 1994, the preapproval EA was made available to Los Alamos County and the general public by placing it in the National Atomic Museum and the Los Alamos National Laboratory Community Reading Rooms. Written comments were received from the New Mexico Environmental Law Center on behalf of the Pueblo of San Ildefonso and from the Environmental Evaluation Group (EEG). The Pueblo of San Ildefonso commented on the amount of time provided for review of the preapproval EA and on the disposal of radioactive wastes generated by the proposed program. EEG comments were primarily of a technical nature. Comments were addressed in the EA.

FOR FURTHER INFORMATION CONTACT: For further information on this proposal or the DOE's National Environmental Policy Act (NEPA) review program concerning activities at LANL, please contact:

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Copies of the environmental assessment are available for public review at the Los Alamos National Laboratory Community Reading Room, 1450 Central Ave., Suite 101, Los Alamos, New Mexico 87544 at (505) 665-2127, or (800) 543-2342.

FINDING: Based on the analysis of impacts in the environmental assessment, conducting the proposed Actinide Source Term Waste Test Program at LANL would not significantly affect the quality of the human environment within the meaning of the National Environmental Policy Act, 42 U.S.C. 4321, et seq. Therefore, the Department is issuing this finding of no significant impact and an environmental impact statement is not required.

Signed in Los Alamos, New Mexico., this 23 day of January, 1995.

for Larry Kirkman, P.E.
Acting Area Manager
Los Alamos Area Office